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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,525	02/15/2006	Mitsuhiro Kashiwabara	112857517	2922
29175 7590 09/04/2009 K&L Gates LLP P. O. BOX 1135 CHICAGO, IL 60690				
EXAMINER				
BREVAIL, ELMITO				
ART UNIT		PAPER NUMBER		
2889				
NOTIFICATION DATE		DELIVERY MODE		
09/04/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

chicago.patents@klgates.com

### Office Action Summary

**Application No.**

10/568,525

**Applicant(s)**

KASHIWABARA ET AL.

**Examiner**

ELMITO BREVAL

**Art Unit**

2889

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 8-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 8-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The amendment filed on 10/09/2008 has been entered.

Claims 1, 8-16 are pending.

Claims 2-7 are cancelled.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 8-10, 12-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al., (JP: 10-003990) of record by the applicant in view of Forrest et al., "White-light-emitting organic electroluminescent devices based on interlayer sequential energy transfer", APPLIED PHYSICS LETTERS, Vol. 75, No. 7, 16 August 1999 of record by the Examiner. The examiner is using the English translation of the Japanese reference of record by the examiner

**Regarding claim 1**, Nakamura ('990) teaches (in at least fig. 1 and corresponding paragraphs) an organic EL device comprising an anode (20), a cathode (40), and an organic layer (30) including a plurality of light emitting layers provided between the anode (20) and the cathode (40), wherein the light emitting layers comprise a red light emitting layer (33), a green light emitting layer (32) provided directly on the red light emitting layer (33), and a blue light emitting layer (31) provided directly on the green light emitting layer (31).

However, Nakamura ('990) does not teach the red light emitting layer is formed on the anode, wherein the red light emitting layer has a hole transporting property, the green light emitting has a positive and negative charge transporting, and the blue light emitting layer has an electron transporting property.

Further regarding claim 1, Forrest in the same field of endeavor teaches (in at least fig. 1 of page 889; 1<sup>st</sup> paragraph) an OLED device comprised of, in part, a red light emitting layer formed on the anode side and the red light emitting layer has a hole transporting property (i.e. holes injected from the anode), the green light emitting has a positive and negative charge transporting (i.e. during recombination in order to emit light) , and the blue light emitting layer has an electron transporting property (i.e. electron injected from the cathode) in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the red light emitting layer structure of Forrest in the device of Nakamura in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

**Regarding claim 8**, Nakamura ('990) teaches (in at least fig. 1) a display device comprising a color filter ([0010]; [0012]) provided on a light take-out surface side of an organic EL device for emitting white light, wherein the organic EL device comprises an organic layer (30) including a plurality of light emitting layers, the organic layer

interposed between the anode (20) and the cathode (40); and the light emitting layers comprise a red light emitting layer (33), a green light emitting layer (32), and a blue light emitting layer (31) laminated in respective order.

However, Nakamura ('990) does not teach the red light emitting layer is formed on the anode wherein the red light emitting layer has a hole transporting property, the green light emitting has a positive and negative charge transporting, and the blue light emitting layer has an electron transporting property.

Further regarding claim 8, Forrest in the same field of endeavor teaches (in at least fig. 1 of page 889; 1<sup>st</sup> paragraph) an OLED device comprised of, in part, a red light emitting layer formed on the anode side and the red light emitting layer has a hole transporting property (i.e. holes from the anode), the green light emitting has a positive and negative charge transporting (i.e. during recombination in order to emit light) , and the blue light emitting layer has an electron transporting property (i.e. electron injected from the cathode) in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the red light emitting layer structure of Forrest in the device of Nakamura in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

**Regarding claim 9**, Nakamura/Forrest teaches (in fig. 1) the red light emitting layer (33) is composed of a single layer.

**Regarding claim 10**, Nakamura/Forrest teach (in fig. 1) the green light emitting layer (32) is composed of a single layer.

**Regarding claim 12**, Nakamura/Forrest teach the red light emitting layer supplies holes to the green light emitting layer.

**Regarding claim 13**, Nakamura ('990) teaches the blue light emitting layer supplies electrons to the green light emitting layer.

**Regarding claim 14**, Nakamura ('990) teaches (in fig. 1) an organic EL device comprising an anode (20), a cathode (40), and an organic layer (30) including plurality of light emitting layers provided between the anode (20) and the cathode (40), wherein said light emitting layers comprises a red light emitting layer (33), a green light emitting layer (32) provided directly on the red light emitting layer (35), and a blue light emitting layer (31) provided directly on the green light emitting layer (32), wherein each of the red light emitting layer (33) and green light emitting layer (32) is composed of a single layer.

However, Nakamura ('990) does not teach the red light emitting layer is formed on the anode wherein the red light emitting layer has a hole transporting property, the green light emitting has a positive and negative charge transporting, and the blue light emitting layer has an electron transporting property.

Further regarding claim 14, Forrest in the same field of endeavor teaches (in at least fig. 1 of page 889; 1<sup>st</sup> paragraph) an OLED device comprised of, in part, a red light

emitting layer formed on the anode side and the red light emitting layer has a hole transporting property (i.e. holes from the anode), the green light emitting has a positive and negative charge transporting (i.e. during recombination in order to emit light) , and the blue light emitting layer has an electron transporting property (i.e. electron injected from the cathode) in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the red light emitting layer structure of Forrest in the device of Nakamura in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

**Regarding claim 16**, Nakamura ('990) teaches (in fig. 1) an organic EL device comprising an anode (20), a cathode (40), and an organic layer (30) including plurality of light emitting layers provided between the anode (20) and the cathode (40), wherein said light emitting layers comprises a red light emitting layer (33), a green light emitting layer (32) provided directly on the red light emitting layer (35), and a blue light emitting layer (31) provided directly on the green light emitting layer (32), wherein each of the red light emitting layer (33) and green light emitting layer (32) is composed of a single layer.

However, Nakamura ('990) does not teach the red light emitting layer is formed on the anode wherein the red light emitting layer has a hole transporting property, the

green light emitting has a positive and negative charge transporting, and the blue light emitting layer has an electron transporting property.

Further regarding claim 16, Forrest in the same field of endeavor teaches (in at least fig. 1 of page 889; 1<sup>st</sup> paragraph) an OLED device comprised of, in part, a red light emitting layer formed on the anode side and the red light emitting layer has a hole transporting property (i.e. holes from the anode), the green light emitting has a positive and negative charge transporting (i.e. during recombination in order to emit light) , and the blue light emitting layer has an electron transporting property (i.e. electron injected from the cathode) in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the red light emitting layer structure of Forrest in the device of Nakamura in order to have a device that emits a balance white light with maximum luminance, maximum external quantum efficiency and low power consumption (page 690, second col.).

Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al., (JP: 10-003990) in view of Forrest et al., "White-light-emitting organic electroluminescent devices based on interlayer sequential energy transfer", APPLIED PHYSICS LETTERS, Vol. 75, No. 7, 16 August 1999 in further view of Suzuki et al., (US. Pat: 6,198,217) of record by the examiner.

**Regarding claims 11 and 15,** Nakamura/Forrest teach all the claimed limitations except for a protective film covering the organic layer.

Further regarding claims 11 and 16, Suzuki ('217) teaches an organic EL device comprised of, in part, a protective layer (P of fig. 1; col. 2, line 60) covering the organic layer for the purpose of protecting the device against moisture.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the protective layer of Suzuki into the device of Nakamura/Forrest for the purpose of protecting the device against moisture.

#### ***Response to Arguments***

The applicant has made several arguments: (1), neither Nakamura nor Forrest discloses or suggests an organic EL device comprising a red light emitting layer, a green light emitting layer, and a blue light emitting layer, *wherein said green light emitting layer has a positive and negative charge transporting property and said blue light emitting layer has an electron transporting property*; (2), the green and blue light emitting layers of Nakamura/Forrest are made of different material than the applicant (3), Nakamura teaches B/G/R laminate order from the light discharge side and the blue fluorescent layer is in contact with the hole injecting layer, the red fluorescent layer contacts the electron-injecting layer, and one of ordinary skill in the art would understand that the blue fluorescent layer has hole transport property rather than an electron property and the red fluorescent layer has an electron transport property rather than hole transport property.

In response to the first argument: the examiner respectfully disagrees. First, during recombination holes that injected from the anode and electrons that injected from cathode will recombine in order for the green light emitting layer to emit light; in order words, the green light emitting layer does in fact have a positive and a negative charge transporting property; the same property hold for the blue light emitting layer.

Regarding the second argument: this argument is moot because the applicant has not claimed the light emitting layers with any particular materials.

Regarding the third argument; again, the examiner respectfully disagrees. The fact the blue fluorescent layer contacts the hole-injecting layer, and the red fluorescent layer contacts the electron-injecting layer does not mean the blue fluorescent layer does not have an electron property and the red light emitting does not have a hole transport property. If this was the case, it would not be feasible for them to emit light.

These layers are light emitting layers during recombination they will have positive and negative charge transporting property in order for them to emit light.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELMITO BREVAL whose telephone number is (571)270-3099. The examiner can normally be reached on M-F (8:30 AM-5:00 Pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Toan Ton can be reached on (571)-272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elmito Breval/  
Examiner, Art Unit 2889

/Toan Ton/  
Supervisory Patent Examiner, Art Unit 2889

August 25, 2009

